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PTO/SB/08A (08-00)

#17

Substitute for form 1449A/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>				Application Number	09/934,739
				Filing Date	August 22, 2001
				First Named Inventor	Louis B. ROSENBERG
				Group Art Unit	2675
				Examiner Name	Bell, Paul A.
Sheet	1	of	3	Attorney Docket Number	IMMR-020/03US (New) IMMIP018B (Old)

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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Number	Kind Code ² (if known)		
	A1	5,785,630		Bobick, et al.	07/28/1998
	A2	5,766,016		Sinclair et al.	06/16/1998
	A3	5,547,382		Yamasaki et al.	08/20/1996
	A4	5,466,213		Hogan et al.	11/14/1995
	A5	5,334,027		Wherlock	08/02/1994
	A6	5,309,140		Everett, Jr., et al.	05/03/1994
	A7	5,299,810		Pierce et al.	04/05/1994
	A8	5,275,174		Cook	01/04/1994
	A9	5,271,290		Fischer	12/21/1993
	A10	5,240,417		Smithson et al.	08/31/1993
	A11	5,212,473		Louis	05/18/1993
	A12	5,078,152		Bond et al.	01/07/1992
	A13	5,038,089		Szakaly	08/06/1991
	A14	5,035,242		Franklin et al.	07/30/1991
	A15	5,022,407		Horch et al.	06/11/1991
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	A18	4,930,770		Baker	06/05/1990
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	A20	4,794,392		Selinko	12/27/1988
	A21	4,713,007		Alban	12/15/1987
	A22	4,708,656		de Vries et al.	11/24/1987
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	A35	3,157,853		Hirsch	11/17/1964

¹ Unique citation designation number.

² See attached Kinds of U.S. Patent Documents.

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Sheet		2	of	3	Attorney Docket Number
				IMMR-020/03US (New) IMM1P018B (Old)	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Office ¹	Number ²	Kind Code ³ (if known)		
	B1		0 349 086	A1	Stork Kwant B.V.	01/03/1990
	B2		WO 95/33459	A1	EXOS, Inc.	11/30/1995

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	C1	Baigrie, "Electric Control Loading – A Low Cost, High Performance Alternative," <i>Proceedings of Interservice/Industry Training Systems Conference</i> , pp. 247-254, November 6-8, 1990	
	C2	Iwata, "Pen-based Haptic Virtual Environment," 0-7803-1363-1/93 IEEE, pp. 287-292, 1993	
	C3	Russo, "The Design and Implementation of a Three Degree of Freedom Force Output Joystick," <i>MIT Libraries Archives</i> pp. 1-131, May 1990, archived 8/14/90	
	C4	Brooks et al., "Hand Controllers for Teleoperation - A State-of-the-Art Technology Survey and Evaluation," <i>JPL Publication 85-11</i> , NASA-CR-175890; N85-28559, pp. 1-84, 03/1/1985	
	C5	Jones et al., "A perceptual analysis of stiffness," ISSN 0014-4819 Springer International (Springer-Verlag); <i>Experimental Brain Research</i> , Vol. 79, No. 1, pp. 150-156, 1990	
	C6	Burdea et al., "Distributed Virtual Force Feedback, Lecture Notes for Workshop on Force Display in Virtual Environments and its Application to Robotic Teleoperation," <i>1993 IEEE International Conference on Robotics and Automation</i> , pp. 25-44, 05/02/1993	
	C7	Snow et al., 'Model-X Force-Reflecting-Hand-Controller,' NT Control No. NPO-17851; JPL Case No. 7348, pp. 1-4 with 45 pages of attachments, 06/15/1989	
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	C11	Adelstein et al., "Design and Implementation of a Force Reflecting Manipulandum for Manual Control research," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 1-12, 1992	
	C12	Gotow et al., "Controlled Impedance Test Apparatus for Studying Human Interpretation of Kinesthetic Feedback," WA11-11:00, pp. 332-337	
	C13	Stanley et al., "Computer Simulation of Interacting Dynamic Mechanical Systems Using Distributed Memory Parallel Processors," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 55-61, ASME 1992	
	C14	Russo, "Controlling Dissipative Magnetic Particle Brakes in Force Reflective Devices," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 63-70, ASME 1992	
	C15	Kontarinis et al., "Display of High-Frequency Tactile Information to Teleoperators," <i>Telemanipulator Technology and Space Telerobotics</i> , Won S. Kim, Editor, Proc. SPIE Vol. 2057, pp. 40-50, Sep. 7-9, 1993	
	C16	Patrick et al., "Design and Testing of A Non-reactive, Fingertip, Tactile Display for Interaction with Remote Environments," <i>Cooperative Intelligent Robotics in Space</i> , Rui J. deFigueiredo et al, Editor, Proc. SPIE Vol. 1387, pp. 215-222, 1990	
	C17	Adelstein, "A Virtual Environment System For The Study of Human Arm Tremor," <i>Ph.D. Dissertation</i> , Dept. of Mechanical Engineering, MIT, June 1989, archived 3/13/90	
	C18	Bejczy, "Sensors, Controls, and Man-Machine Interface for Advanced Teleoperation," <i>Science</i> , Vol. 208, No. 4450, pp. 1327-1335, 1980	
	C19	Bejczy et al., "Generalization of Bilateral Force-Reflecting Control of Manipulators," <i>Proceedings Of Fourth CISIM/IFToMM</i> , Sep. 8-12, 1981	

¹ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

² For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

³ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

⁴ Applicant is to place a check mark here if English language Translation is attached.



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Substitute for form 1449A/PTO				<i>Complete if Known</i>	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>				RECEIVED	
Sheet	3	of	3	Application Number	09/934,739
				Filing Date	August 22, 2001
				First Named Inventor	Louis B. ROSENBERG
				Group Art Unit	2675
				Examiner Name	Bell, Paul A.
				Attorney Docket Number	IMMR-020/03US (New) IMM1P018B (Old)

C20	McAfee et al., "Teleoperator Subsystem/Telerobot Demonstrator: Force Reflecting Hand Controller Equipment Manual," <i>JPL 1988, JPL D-5172</i>	
C21	Minsky, "Computational Haptics: The Sandpaper System for Synthesizing Texture for a Force-Feedback Display," <i>Ph.D. Dissertation, MIT, June 1995, archived 7/6/95</i>	
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C25	Terry et al., "Tactile Feedback In A Computer Mouse," <i>Proceedings of Fourteenth Annual Northeast Bioengineering Conference, University of New Hampshire, March 10-11, 1988</i>	
C26	Howe, "A Force-Relating Teleoperated Hand System for the Study of Tactile Sensing in Precision Manipulation," <i>Proceedings of the 1992 IEEE International Conference on Robotics and Automation, Nice, France, May 1992</i>	
C27	Eberhard et al., "OMAR - A Haptic display for speech perception by deaf and deaf-blind individuals," <i>IEEE Virtual Reality Annual International Symposium, Seattle, WA, Sep. 18-22, 1993</i>	
C28	Rabinowitz et al., "Multidimensional tactile displays: Identification of vibratory intensity, frequency, and contractor area," <i>Journal of The Acoustical Society of America, Vol. 82, No. 4, October 1987</i>	
C29	Bejczy et al., "Kinesthetic Coupling Between Operator and Remote Manipulator," <i>International Computer Technology Conference, The American Society of Mechanical Engineers, San Francisco, CA, August 12-15, 1980</i>	
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C32	Marcus, "Touch Feedback in Surgery," <i>Proceedings of Virtual Reality and Medicine The Cutting Edge, Sep. 8-11, 1994</i>	
C33	Bejczy, et al., "Universal Computer Control System (UCCS) For Space Telerobots," <i>CH2413-3/87/0000/0318501.00 1987 IEEE, 1987</i>	
C34	Ouhyoung, et al., "A Force Feedback Joystick and Its Use in PC Video Games" <i>International Conference on Consumer Electronics - Digest of Technical Papers, IEEE, Conf. 14, June 07, 1995</i>	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number.

² Applicant is to place a check mark here if English language Translation attached.

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Sheet

1

of 3

Complete If Known

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

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U.S. PATENT DOCUMENTS

Examiner	Cite No. ¹	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
		6,422,941		7/23/2002	Thomer et al.	
		6,160,489		12/12/2000	Perry et al.	
		6,111,577		8/29/2000	Zilles et al.	
		5,690,582		11/25/1997	Ulrich et al.	
		5,575,761		11/19/1996	Hajianpour	
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		5,186,695		2/16/1993	Mangseth et al.	
		5,175,459		12/29/1992	Danial et al.	
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		5,022,384		6/11/1991	Freels	
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Examiner Initials ⁴	Cite No. ¹	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code ³	Number ⁴	Kind Code ⁵ (if known)			
		JP	H2-185278		7/19/1990	Taito Corporation	
		JP	H4-8381		1/13/1992	Epoch Co. and Key-Planning Co.	
		JP	H7-24147		1/27/1995	Sega Corporation	
		JP	H5-192449		8/3/1993	Taito Corporation	

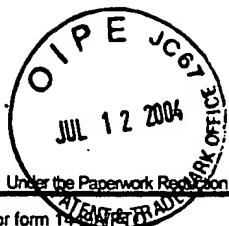
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 2 of 3

Complete if Known

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

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OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

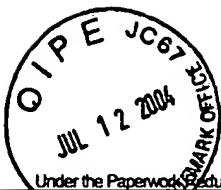
Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
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		"Cyberman Technical Specification," <i>Logitech Cyberman SWIFT Supplement to Logitech Mouse Technical Reference and Programming Guide</i> , 4/5/1994.
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		KACZMAREK et al., "Tactile Displays," <i>Virtual Environment Technologies</i> , Chap. 9, pp. 349-414.
		LAKE, "Cyberman from Logitech," at http://www.ibiblio.org/GameBytes/issue21/greviews/cyberman.html , 1994.
✓		"Component Maintenance Manual With Illustrated Parts List, Coaxial Control Shaker Part no. C-25502," Safe Flight Instrument Corporation, Revised 28 January 2002 (3 pages).

Examiner Signature	<i>P. D. MARIA</i>	Date Considered	11-29-05
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Sheet 3 of 3

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Application Number	09/934,739
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	SCANNELL, "Taking a Joystick Ride," <i>Computer Currents</i> , Boston Edition, Vol. 9, No. 11, November 1994
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Examiner Signature	P. DiMaria	Date Considered	11-28-05
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		6,111,577	8/2000	Zilles et al.	
		6,104,158	8/2000	Jacobus et al.	
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Examiner Signature	P D A et al	Date Considered	11-029-05
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 2 of 14

Complete If Known

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

U.S. PATENT DOCUMENTS					
Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		5,739,811	4/1998	Rosenberg et al.	
		5,736,978	4/1998	Hasser et al.	
		5,734,373	3/1998	Rosenberg et al.	
		5,731,804	3/1998	Rosenberg	
		5,721,566	2/1998	Rosenberg et al.	
		5,714,978	2/1998	Yamanaka et al.	
		5,709,219	1/1998	Chen et al.	
		5,694,013	12/1997	Stewart et al.	
		5,691,898	11/1997	Rosenberg et al.	
		5,691,747	11/1997	Amano	
		5,666,473	9/1997	Wallace	
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		5,643,087	7/1997	Marcus et al.	
		5,642,469	6/1997	Hannaford et al.	
		5,631,861	5/1997	Kramer	
		5,629,594	5/1997	Jacobus et al.	
		5,625,576	4/1997	Massie et al.	
		5,623,642	4/1997	Katz et al.	
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		5,619,180	4/1997	Massimino et al.	
		5,596,347	1/1997	Robertson et al.	
		5,591,924	1/1997	Hilton	
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		5,572,639	11/1996	Grant	
		5,570,111	10/1996	Barrette et al.	
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		5,551,701	9/1996	Bouton et al.	
		5,550,562	8/1996	Aoki et al.	
		5,530,455	6/1996	Gillick et al.	

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Date
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11-29-05

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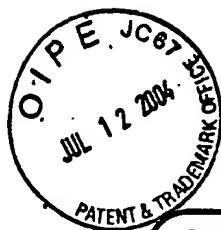
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 3 of 14

Complete if Known

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

U.S. PATENT DOCUMENTS

Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		5,526,480	6/1996	Gibson	
		5,513,100	4/1996	Parker et al.	
		5,512,919	4/1996	Araki	
		5,482,051	1/1996	Reddy et al.	
		5,473,235	12/1995	Lance et al.	
		5,471,571	11/1995	Smith et al.	
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		5,445,166	8/1995	Taylor	
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		5,429,140	7/1995	Burdea et al.	
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		5,414,337	5/1995	Schuler	
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		5,296,871	3/1994	Paley	
		5,296,846	3/1994	Ledley	

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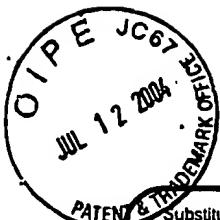
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Sheet 4 of 14

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Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

U.S. PATENT DOCUMENTS

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		5,289,273	2/1994	Lang	
		5,286,203	2/1994	Fuller et al.	
		5,275,565	1/1994	Moncrief	
		5,264,768	11/1993	Gregory et al.	
		5,262,777	11/1993	Low et al.	
		5,259,894	11/1993	Sampson	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 5 of 14

Complete if Known

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

U.S. PATENT DOCUMENTS

Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		5,126,948	6/1992	Mitchell et al.	
		5,116,051	5/1992	Moncrief et al.	
		5,107,262	4/1992	Cadoz et al.	
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		4,823,634	4,1989	Culver	
		4,819,195	4/1989	Bell et al.	

Examiner
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R. D. Agarwal

Date
Considered

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 6 of 14

Complete if Known

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

U.S. PATENT DOCUMENTS

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		4,811,608	3/1989	Hilton	
		4,803,413	2/1989	Kendig et al.	
		4,800,721	1/1989	Cemenska et al.	
		4,798,919	1/1989	Miessler et al.	
		4,791,934	12/1988	Brunnett	
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		4,638,798	1/1987	Sheldon et al.	
		4,632,341	12/1986	Repperger et al.	
		4,601,206	7/1986	Watson	
		4,593,470	6/1986	Davies	
		4,571,834	2/1986	Fraser et al.	
		4,550,617	11/1985	Fraignier et al.	
		4,550,221	10/1985	Mabusth	
		4,477,973	10/1984	Davies	
		4,477,043	10/1984	Repperger	
		4,448,083	5/1984	Hayashi	
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		4,398,889	8/1983	Lam et al.	
		4,216,467	8/1980	Colston	
		4,148,014	4/1979	Burson	
		4,125,800	11/1978	Jones	
		4,114,882	9/1978	Mau	

Examiner
Signature

P. DHAJIA

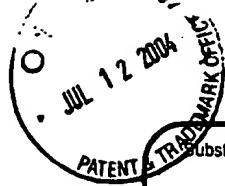
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 7 of 14

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Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

U.S. PATENT DOCUMENTS				
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		Number Kind Code ² (if known)		
		3,944,798	3/1976	Eaton
		3,919,691	11/1975	Noll
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		2,906,179	9/1959	Bower

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		Country Code ³	Number ⁴	Kind Code ⁵ (if known)			
		WO	9720305		6/1997		
		WO	9719440		5/1997		
		WO	9712357		4/1997		
		WO	9712337		4/1997		
		WO	9642078		12/1996		
		WO	9628777		9/1996		
		WO	9622591		7/1996		
		WO	9616397		5/1996		
		WO	9532459		11/1995		
		WO	9520788		8/1995		
		WO	9520787		8/1995		
		WO	9510080		4/1995		
		WO	9502801		1/1995		
		WO	9502233		of 0000		
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		GB	2254911	A	10/1992		
		EP	0626634	A2	11/1994		
		EP	0085518	A1	8/1983		
		EP	0265011	A1	4/1998		

Examiner Signature

P. Dharia

Date Considered

11-29-04

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		Application Number	09/934,739
		Filing Date	August 22, 2001
		First Named Inventor	Louis B. Rosenberg
		Art Unit	2675
		Examiner Name	Paul A. Bell
Sheet	8	of	14
		Attorney Docket Number	

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Examiner
Signature

P. D'ARIA

Date
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Application Number	09/934,739	RECEIVED
Filing Date	August 22, 2001	JUL 15 2004
First Named Inventor	Louis B. Rosenberg	
Art Unit	2675	
Examiner Name	Paul A. Bell	Technology Center 2600
Attorney Docket Number	IMMR020/03US	

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS	
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	KELLEY, A. J. et al., "MagicMouse: Tactile and Kinesthetic Feedback in the Human-Computer Interface using an Electromagnetically Actuated Input/Output Device," Dept. of Elec. Eng., Univ. of Brit. Columbia, 1993, pp. 1-27.
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Attorney Docket Number	IMMR020/03US

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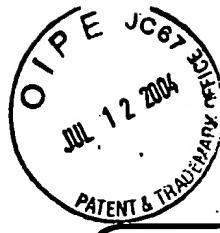
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Filing Date August 22, 2001

First Named Inventor Louis B. Rosenberg

Art Unit 2675

Examiner Name Paul A. Bell

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<i>AB</i>		ROSENBERG, Louis B., Crew Systems Directorate Biodynamics and Biocommunications Division Wright-Patterson, Air Force Material Command, Mar. 1993, pp. 1-45.
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<i>✓</i>		ZILLES, C.B. et al., "A Constraint-based God-object Method for Haptic Display," IEEE 0-818607108-4, 1995, pp. 146-150.

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P. D. D'ARIA

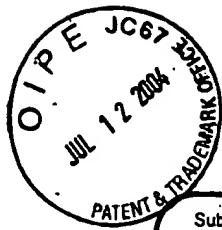
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